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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,021	04/24/2007	Heiko Pelzer	AT040015US1	7076
65913	7590	05/13/2009		
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			EXAMINER HU, JENNIFER F	
			ART UNIT 2821	PAPER NUMBER
			NOTIFICATION DATE 05/13/2009	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/594,021	PELZER, HEIKO	
	<b>Examiner</b>	<b>Art Unit</b>	
	JENNIFER F. HU	2821	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-19 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1, 3-19 are pending. Claim 2 is cancelled.

### ***Response to Arguments***

2. Applicant's arguments filed January 27, 2009 have been fully considered but they are not persuasive.

3. In response to applicant's argument that Tsubaki fails to teach the switching means is part of the antenna configuration, as taught by amended claim 1, examiner notes that "antenna configuration" is very broad, and can be defined as the entire antenna unit as pictured in Fig. 1 of Tsubaki. Therefore, the switching means (19, Fig. 1) is considered "part of the antenna configuration". The claim language does not require the switching means to be mounted onto the same substrate as the antenna elements. However, a modification of moving the switching means onto the same substrate as the antenna elements would also be obvious.

4. In response to applicant's argument that Tsubaki fails to teach that the first radiation electrode and the second radiation electrode are electrically isolate because both the first and second radiation electrodes are connected to ground, examiner notes Tsubaki teaches a second embodiment of the invention comprising a first resonator structure (35, Fig. 6) being connected to a feed line provided on the dielectric substrate, and the second resonator structure (32, Fig. 6), by means of the dielectric substrate being electrically isolated from the first resonator structure. The embodiment as shown in Fig. 6 indicates that only the second resonator structure is connected to ground while the first resonator structure is not.

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***Claim Objections***

5. Claims 5 and 18 are objected to because of the following informalities: It is unclear what is "being connected to ground." Based on the specification and drawings, the examiner has interpreted this to read "wherein the second resonator structure is connected to ground." Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3-7, 9-13, 15-16, and 18-19 rejected under 35 U.S.C. 102(b) as being anticipated by Tsubaki (EP 1 109 251 A1, cited by International Search Report).

8. As to claim 1, Tsubaki teaches an antenna configuration for a telecommunication device wherein the antenna configuration comprising

a first resonator structure (13, Fig. 1) and

a second resonator structure (14, Fig. 1) and

a control electrode (18, Fig. 1), said two resonator structures are capacitively coupled to one another and said control electrode being provided and realized for changing the capacitive coupling between the first resonator structure and the second resonator structure ("a control electrode for providing coupling capacitances between the open end of the first radiation

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electrode and the control electrode and between the open end of the second radiation electrode and the control electrode,” abstract), and

the control electrode being contactable from outside the antenna configuration, wherein a switching means (19, Fig. 1) being associated with the control electrode, by means of the switching means (19, Fig. 1) the control electrode being connectable to a reference potential (ground symbol, Fig. 1), wherein

the switching means is part of the antenna configuration and/or being an external unit with regard to the antenna configuration (antenna configuration is broad and is interpreted as the entire structure pictured in Fig. 1. It is not limited to what is mounted on the substrate).

As to claim 3, Tsubaki teaches the switching means (19, Fig. 1) is designed to connect the control electrode (18, Fig. 1) to ground (ground symbol, Fig. 1).

As to claims 4 and 18, Tsubaki teaches the antenna configuration is realized by means of a planar inverted F antenna or a shorted patch antenna or a stub antenna (patch 13 is shorted via connecting electrode 15, Fig. 1).

As to claims 5 and 19, Tsubaki teaches the antenna configuration comprising a dielectric substrate (31, Fig. 6) retaining the first resonator structure (35, Fig. 6) and the second resonator structure (32, Fig. 6), the first resonator structure being connected to a feed line (36, Fig. 6) provided on the dielectric substrate, and the second resonator structure, by means of the dielectric substrate being electrically isolated from the first resonator structure and being located adjacent to the first resonator structure, wherein the second resonator structure is connected to ground (39a, Fig. 6).

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As to claim 6, Tsubaki teaches the first resonator structure (35, Fig. 6) and the second resonator structure (32, Fig. 6) are realized by printed structures printed on a surface of the dielectric substrate (31, Fig. 6).

As to claim 7, Tsubaki teaches the first resonator structure and the second resonator structure are at least partially located in the interior of the dielectric substrate (where the interior of the dielectric substrate can be interpreted as the central portion of the top surface, where the first resonator extends into the middle of the surface of the dielectric).

As to claim 9, Tsubaki teaches the switching means comprises a PIN diode or a semiconductor switch ("a switch ... may be of any construction...for example, an element such as a diode, a transistor, a field-effect transistor, etc," [0051]).

As to claim 10, Tsubaki teaches the switching means comprises a variable capacitance diode ("a switch ... may be of any construction...for example, an element such as a diode, a transistor, a field-effect transistor, etc," [0051]).

As to claim 11, Tsubaki teaches a telecommunication device ("communication device," [0001]), comprising an antenna configuration according to claim 1.

As to claim 12, Tsubaki teaches a method of operating a telecommunication device comprising an antenna configuration according to claim 1, wherein the antenna configuration comprises a control electrode (18, Fig. 1) said control electrode is contacted from outside the antenna configuration and for changing the resonance frequency of the antenna configuration contacting of the control electrode from outside is done by switchably connecting the control electrode to a reference potential (19, Fig. 1).

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As to claim 13, Tsubaki teaches the resonance frequency is changed between a first frequency band and a second frequency band ("double resonance is realized by using two antennas, and, by turning on and off a switch connected to a control electrode," [0018]).

As to claim 15, Tsubaki teaches the resonance frequency is changed within a given frequency band between a first sub-band and a second sub-band ("double resonance...establish a broader bandwidth," [0018] – [0020]).

As to claim 16, Tsubaki teaches the resonance frequency is changed in discrete steps (Fig. 3), wherein the resonance frequency is changed a fixed amount ( $\Delta f_1$ ,  $\Delta f_2$ ) in each of the discrete steps.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsubaki in view of Adam (US 5,774,025).

As to claim 8, Tsubaki teaches the antenna configuration substantially as claimed as applied to claim 7 above, but does not teach the antenna configuration being manufactured by usage of low temperature cofired ceramic technology (LTCC). However, low temperature cofired ceramic technology is well known in the art, as taught by Adam, and one of ordinary skill in the art would have been motivated to use LTCC as the substrate because the high dielectric

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constants of LTCC's allow the antenna unit to be further miniaturized. The multi-layering capability also allows composite electrical parameters to be handled within a single substrate, thus simplifying the manufacture of the antenna unit.

As to claim 17, Tsubaki teaches the antenna configuration substantially as claimed as applied to claim 5 above, but does not teach the dielectric substrate includes multiple sintered layers of ceramic foils. Adam teaches a dielectric substrate including multiple sintered layers of ceramic foils using low temperature cofired ceramic technology. One of ordinary skill in the art would have been motivated to use LTCC as the substrate because the high dielectric constants of LTCC's allow the antenna unit to be further miniaturized. The multi-layering capability also allows composite electrical parameters to be handled within a single substrate, thus simplifying the manufacture of the antenna unit.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsubaki. Tsubaki teaches the method substantially as claimed as applied to claim 13 above, but does not teach the resonance frequency is changed between the DCS band and the UMTS band. However, antennas are frequency scaled to operate anywhere desired in a particular design, and the antenna of Tsubaki can easily be tuned to and utilized for the DCS and UMTS frequency bands by one of ordinary skill in the art.

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***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER F. HU whose telephone number is (571) 270-3831. The examiner can normally be reached on Monday-Friday 9:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JENNIFER F HU/  
Examiner, Art Unit 2821

/Douglas W Owens/  
Supervisory Patent Examiner, Art Unit 2821  
May 8, 2009